

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re the application of: Wei Gu

Serial No.: N/A

Filed: Herewith

For: NOVEL G-PROTEIN COUPLED  
RECEPTORS AND USES THEREFOR

Attorney Docket No.: MNI-080CP

BOX SEQUENCE

Commissioner for Patents  
Washington, D.C. 20231

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Dear Sir:

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Signature

Ilidio P. Cardoso

Please Print Name of Person Signing

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Attorneys at Law

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## SEQUENCE LISTING

&lt;110&gt; Gu, Wei

&lt;120&gt; NOVEL G-PROTEIN COUPLED RECEPTORS AND USES THEREFOR

&lt;130&gt; MNI-080CP

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&lt;150&gt; 09/556,588

&lt;151&gt; 2000-05-08

&lt;150&gt; 60/132,896

&lt;151&gt; 1999-05-06

&lt;160&gt; 12

&lt;170&gt; PatentIn Ver. 2.0

&lt;210&gt; 1

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gac ccc ctg acg gct tac cta gac ctc agt atg aac aac ctc acg gag 240  
 Asp Pro Leu Thr Ala Tyr Leu Asp Leu Ser Met Asn Asn Leu Thr Glu  
 65 70 75 80

ctt cag ccg ggt ctc ttc cac cac ctg cgc ttc ctg gag gag ctg cgg 288  
 Leu Gln Pro Gly Leu Phe His His Leu Arg Phe Leu Glu Glu Leu Arg  
 85 90 95

ctc tca ggg aac cac ctc tca cac atc ccg gga cag gca ttc tcc ggc 336  
 Leu Ser Gly Asn His Leu Ser His Ile Pro Gly Gln Ala Phe Ser Gly  
 100 105 110

ctc cac agc ctc aaa att cta atg ctg cag agc aac cag ctc cgt ggg 384  
 Leu His Ser Leu Lys Ile Leu Met Leu Gln Ser Asn Gln Leu Arg Gly  
 115 120 125

atc cca gca gag gca cta tgg gag ctg ccc agc ctg cag tcg ctg cgc 432  
 Ile Pro Ala Glu Ala Leu Trp Glu Leu Pro Ser Leu Gln Ser Leu Arg  
 130 135 140

cta gat gct aat ctc atc tcc ctg gtc cct gag aga agc ttt gag ggg 480  
 Leu Asp Ala Asn Leu Ile Ser Leu Val Pro Glu Arg Ser Phe Glu Gly  
 145 150 155 160

ctc tcc tcc ctc cgc cac ctc tgg ctg gat gac aat gca ctc act gag 528  
 Leu Ser Ser Leu Arg His Leu Trp Leu Asp Asp Asn Ala Leu Thr Glu  
 165 170 175

atc ccc gtc aga gct ctc aac aac ctt cct gcc cta cag gcc atg acc 576  
 Ile Pro Val Arg Ala Leu Asn Asn Leu Pro Ala Leu Gln Ala Met Thr  
 180 185 190

ttg gct ctc aac cat atc cgc cac atc cct gac tat gcc ttc cag aac 624  
 Leu Ala Leu Asn His Ile Arg His Ile Pro Asp Tyr Ala Phe Gln Asn  
 195 200 205

ctc acc agt ctt gtg gtg ctg cat cta cat aac aac cgc atc cag cat 672  
 Leu Thr Ser Leu Val Val Leu His Leu His Asn Asn Arg Ile Gln His  
 210 215 220

gtg ggg acc cac agc ttc gag ggg ctg cac aat ctg gag aca cta gac 720  
 Val Gly Thr His Ser Phe Glu Gly Leu His Asn Leu Glu Thr Leu Asp  
 225 230 235 240

ctg aac tat aat gag ctg cag gag ttc ccc ttg gct atc cgg acc ctg 768  
 Leu Asn Tyr Asn Glu Leu Gln Glu Phe Pro Leu Ala Ile Arg Thr Leu  
 245 250 255

2025 RELEASE UNDER E.O. 14176



Ala	Tyr	Gly	Ile	Cys	Ala	Ser	Phe	Phe	Lys	Thr	Ser	Gly	Gln	Trp	Gln		
				485					490					495			
gcc	gag	gac	ttt	cat	cca	gaa	gaa	gag	gag	gca	cca	aag	agg	ccc	ctg	1536	
Ala	Glu	Asp	Phe	His	Pro	Glu	Glu	Glu	Glu	Ala	Pro	Lys	Arg	Pro	Leu		
			500					505					510				
ggt	ctc	ctt	gct	gga	caa	gct	gag	aac	cac	tat	gac	cta	gac	ctg	gat	1584	
Gly	Leu	Leu	Ala	Gly	Gln	Ala	Glu	Asn	His	Tyr	Asp	Leu	Asp	Leu	Asp		
		515					520					525					
gag	ctc	cag	atg	ggg	aca	gag	gac	tca	aag	cca	aac	ccc	agt	gtc	cag	1632	
Glu	Leu	Gln	Met	Gly	Thr	Glu	Asp	Ser	Lys	Pro	Asn	Pro	Ser	Val	Gln		
	530					535					540						
tgc	agc	cct	gtt	cca	ggc	ccc	ttc	aag	ccc	tgc	gag	cac	ctc	ttt	gag	1680	
Cys	Ser	Pro	Val	Pro	Gly	Pro	Phe	Lys	Pro	Cys	Glu	His	Leu	Phe	Glu		
545					550					555					560		
agc	tgg	ggc	atc	cgc	ctt	gct	gtg	tgg	gcc	atc	gtg	ctg	ctc	tcc	gta	1728	
Ser	Trp	Gly	Ile	Arg	Leu	Ala	Val	Trp	Ala	Ile	Val	Leu	Leu	Ser	Val		
				565					570					575			
ctc	tgt	aac	ggg	ctg	gtg	ctg	ctg	aca	gtc	ttt	gcc	agc	gga	ccc	agc	1776	
Leu	Cys	Asn	Gly	Leu	Val	Leu	Leu	Thr	Val	Phe	Ala	Ser	Gly	Pro	Ser		
			580					585					590				
ccg	ctg	tcc	ccc	gtc	aag	ctt	gtg	gtg	ggg	gcg	atg	gca	ggc	gcc	aac	1824	
Pro	Leu	Ser	Pro	Val	Lys	Leu	Val	Val	Gly	Ala	Met	Ala	Gly	Ala	Asn		
		595					600					605					
gcc	ctg	acg	ggc	att	tcc	tgt	ggg	ctc	ctg	gcc	tct	gtg	gac	gcc	ttg	1872	
Ala	Leu	Thr	Gly	Ile	Ser	Cys	Gly	Leu	Leu	Ala	Ser	Val	Asp	Ala	Leu		
	610					615					620						
acc	tat	ggt	cag	ttc	gct	gag	tat	gga	gcc	cgc	tgg	gag	agc	ggg	ctg	1920	
Thr	Tyr	Gly	Gln	Phe	Ala	Glu	Tyr	Gly	Ala	Arg	Trp	Glu	Ser	Gly	Leu		
625					630				635						640		
ggc	tgc	cag	gct	acg	ggc	ttc	ctg	gct	gtc	ctg	ggg	tca	gag	gcg	tgc	1968	
Gly	Cys	Gln	Ala	Thr	Gly	Phe	Leu	Ala	Val	Leu	Gly	Ser	Glu	Ala	Ser		
			645					650					655				
gtg	ctg	ctg	ctc	aca	ctg	gcg	gcc	gtg	cag	tgc	agc	atc	tct	gtg	acc	2016	
Val	Leu	Leu	Leu	Thr	Leu	Ala	Ala	Val	Gln	Cys	Ser	Ile	Ser	Val	Thr		
			660					665					670				
tgc	gtc	cga	gcc	tac	ggg	aag	gcg	ccg	tgc	cct	ggc	agc	gtc	cgc	gca	2064	
Cys	Val	Arg	Ala	Tyr	Gly	Lys	Ala	Pro	Ser	Pro	Gly	Ser	Val	Arg	Ala		
		675					680					685					
ggc	gca	ctg	gga	tgc	ctg	gcg	ctg	gcc	ggg	ctg	gcc	gca	gca	ctg	ccg	2112	
Gly	Ala	Leu	Gly	Cys	Leu	Ala	Leu	Ala	Gly	Leu	Ala	Ala	Ala	Leu	Pro		
	690					695					700						
ctg	gcc	tgc	gtg	gga	gag	tat	ggc	gcc	tcc	cca	ctc	tgc	ctg	ccc	tac	2160	
Leu	Ala	Ser	Val	Gly	Glu	Tyr	Gly	Ala	Ser	Pro	Leu	Cys	Leu	Pro	Tyr		

705	710	715	720	
gcc cca ccc gag ggc cgg ccg gcc gcc ctg ggc ttc gct gta gcc ctg				2208
Ala Pro Pro Glu Gly Arg Pro Ala Ala Leu Gly Phe Ala Val Ala Leu				
	725	730	735	
gtg atg atg aac tcg ctc tgc ttc ctg gtg gtg gcc ggc gcc tac atc				2256
Val Met Met Asn Ser Leu Cys Phe Leu Val Val Ala Gly Ala Tyr Ile				
	740	745	750	
aag ctc tac tgt gac ctg cca cgg ggt gac ttt gag gcc gtg tgg gac				2304
Lys Leu Tyr Cys Asp Leu Pro Arg Gly Asp Phe Glu Ala Val Trp Asp				
	755	760	765	
tgc gcc atg gtg cgc cac gtg gcc tgg ctc atc ttt gca gat ggc ctc				2352
Cys Ala Met Val Arg His Val Ala Trp Leu Ile Phe Ala Asp Gly Leu				
	770	775	780	
ctc tac tgc ccc gtg gcc ttc ctc agc ttt gcc tcc atg ctg ggc ctc				2400
Leu Tyr Cys Pro Val Ala Phe Leu Ser Phe Ala Ser Met Leu Gly Leu				
	785	790	800	
ttc cct gtc acc ccc gag gct gtc aag tca gtc ctt ctg gtg gtg ctg				2448
Phe Pro Val Thr Pro Glu Ala Val Lys Ser Val Leu Leu Val Val Leu				
	805	810	815	
cct ctg cct gcc tgc ctc aac cca ctg ctc tac ctg ctc ttc aac cct				2496
Pro Leu Pro Ala Cys Leu Asn Pro Leu Leu Tyr Leu Leu Phe Asn Pro				
	820	825	830	
cac ttc cgg gat gac ctt cgg cgg ctc tgg cca agc cct cgg tcc cca				2544
His Phe Arg Asp Asp Leu Arg Arg Leu Trp Pro Ser Pro Arg Ser Pro				
	835	840	845	
ggg ccc cta gcc tac gct gca gcc ggt gag ctg gag aag agc tcc tgc				2592
Gly Pro Leu Ala Tyr Ala Ala Ala Gly Glu Leu Glu Lys Ser Ser Cys				
	850	855	860	
gac tcc acc caa gcg ctg gtg gct ttc tca gat gtg gat ctt att ctg				2640
Asp Ser Thr Gln Ala Leu Val Ala Phe Ser Asp Val Asp Leu Ile Leu				
	865	870	875	880
gaa gct tct gag gct ggg cag cct cct ggg cta gag acc tat ggc ttc				2688
Glu Ala Ser Glu Ala Gly Gln Pro Pro Gly Leu Glu Thr Tyr Gly Phe				
	885	890	895	
cct tca gtg acc ctc atc tcc cga cat cag ccg ggg gcc acc agg ctg				2736
Pro Ser Val Thr Leu Ile Ser Arg His Gln Pro Gly Ala Thr Arg Leu				
	900	905	910	
gag gga aac cat ttt ata gag tct gat gga acc aag ttt ggg aac cca				2784
Glu Gly Asn His Phe Ile Glu Ser Asp Gly Thr Lys Phe Gly Asn Pro				
	915	920	925	
caa cct ccc atg aag gga gaa ctg ctg ctg aag gca gag gga gcc act				2832
Gln Pro Pro Met Lys Gly Glu Leu Leu Leu Lys Ala Glu Gly Ala Thr				
	930	935	940	

2025 RELEASE UNDER E.O. 14176

ttg gca ggc tgt ggc tct tcc gtg ggt gga gcc ctc tgg ccc tct ggc 2880  
 Leu Ala Gly Cys Gly Ser Ser Val Gly Gly Ala Leu Trp Pro Ser Gly  
 945 950 955 960

tct ctc ttt gcc tct cac ttg 2901  
 Ser Leu Phe Ala Ser His Leu  
 965

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 <212> DNA  
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<220>  
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gga att ccc ggg tcg acc cac gcg tcc gtg gag cgg agc cag ggt ctg 97  
 Gly Ile Pro Gly Ser Thr His Ala Ser Val Glu Arg Ser Gln Gly Leu  
 20 25 30

agc ctg ccg gct cat cca gcc tct ctt gct gcc cta gcg gcc tcc aac 145  
 Ser Leu Pro Ala His Pro Ala Ser Leu Ala Ala Leu Ala Ala Ser Asn  
 35 40 45

aca acc gca tct ggg aaa ttg gag ctn gac acc ttc agc cag ctg agc 193  
 Thr Thr Ala Ser Gly Lys Leu Glu Xaa Asp Thr Phe Ser Gln Leu Ser  
 50 55 60

tcc ctg caa gcc ctg gat ctt agc tgg aac gcc atc cgg tcc atc cac 241  
 Ser Leu Gln Ala Leu Asp Leu Ser Trp Asn Ala Ile Arg Ser Ile His  
 65 70 75 80

cct gag gcc ttc tcc acc ctg cac tcc ctg gtc aag ctg gac ctg aca 289  
 Pro Glu Ala Phe Ser Thr Leu His Ser Leu Val Lys Leu Asp Leu Thr  
 85 90 95

gac aac cag ctg acc aca ctg ccc ctg gct gga ctt ggg ggc ttg atg 337  
 Asp Asn Gln Leu Thr Thr Leu Pro Leu Ala Gly Leu Gly Gly Leu Met  
 100 105 110

cat ctg aag ctc aaa ggg aac ctt gct ctc tcc cag gcc ttc tcc aag 385  
 His Leu Lys Leu Lys Gly Asn Leu Ala Leu Ser Gln Ala Phe Ser Lys  
 115 120 125

gac agt ttc cca aaa ctg agg atc ctg gag gtg cct tat gcc tac cag	433
Asp Ser Phe Pro Lys Leu Arg Ile Leu Glu Val Pro Tyr Ala Tyr Gln	
130 135 140	
tgc tgt ccc tat ggg atg tgt gcc agc ttc ttc aag gcc tct ggg cag	481
Cys Cys Pro Tyr Gly Met Cys Ala Ser Phe Phe Lys Ala Ser Gly Gln	
145 150 155 160	
tgg gag gct gaa gac ctt cac ctt gat gat gag gag tct tca aaa agg	529
Trp Glu Ala Glu Asp Leu His Leu Asp Asp Glu Glu Ser Ser Lys Arg	
165 170 175	
ccc ctg ggc ctc ctt gcc aga caa gca gag aac cac tat gac cag gac	577
Pro Leu Gly Leu Leu Ala Arg Gln Ala Glu Asn His Tyr Asp Gln Asp	
180 185 190	
ctg gat gag ctc cag ctg gag atg gag gac tca aag cca cac ccc agt	625
Leu Asp Glu Leu Gln Leu Glu Met Glu Asp Ser Lys Pro His Pro Ser	
195 200 205	
gtc cag tgt agc cct act cca ggc ccc ttc aag ccc tgt gag tac ctc	673
Val Gln Cys Ser Pro Thr Pro Gly Pro Phe Lys Pro Cys Glu Tyr Leu	
210 215 220	
ttt gaa agc tgg ggc atc cgc ctg gcc gtg tgg gcc atc gtg ttg ctc	721
Phe Glu Ser Trp Gly Ile Arg Leu Ala Val Trp Ala Ile Val Leu Leu	
225 230 235 240	
tcc gtg ctc tgc aat gga ctg gtg ctg ctg acc gtg ttc gct ggc ggg	769
Ser Val Leu Cys Asn Gly Leu Val Leu Thr Val Phe Ala Gly Gly	
245 250 255	
cct gcc ccc ctg ccc ccg gtc aag ttt gtg gta ggt gcg att gca ggc	817
Pro Ala Pro Leu Pro Pro Val Lys Phe Val Val Gly Ala Ile Ala Gly	
260 265 270	
gcc aac acc ttg act ggc att tcc tgt ggc ctt cta gcc tca gtc gat	865
Ala Asn Thr Leu Thr Gly Ile Ser Cys Gly Leu Leu Ala Ser Val Asp	
275 280 285	
gcc ctg acc ttt ggt cag ttc tct gag tac gga gcc cgc tgg gag acg	913
Ala Leu Thr Phe Gly Gln Phe Ser Glu Tyr Gly Ala Arg Trp Glu Thr	
290 295 300	
ggg cta ggc tgc cgg gcc act ggc ttc ctg gca gta ctt ggg tcg gag	961
Gly Leu Gly Cys Arg Ala Thr Gly Phe Leu Ala Val Leu Gly Ser Glu	
305 310 315 320	
gca tcg gtg ctg ctg ctc act ctg gcc gca gtg cag tgc agc gtc tcc	1009
Ala Ser Val Leu Leu Leu Thr Leu Ala Ala Val Gln Cys Ser Val Ser	
325 330 335	
gtc tcc tgt gtc cgg gcc tat ggg aag tcc ccc tcc ctg ggc agc gtt	1057
Val Ser Cys Val Arg Ala Tyr Gly Lys Ser Pro Ser Leu Gly Ser Val	
340 345 350	
cga gca ggg gtc cta ggc tgc ctg gca ctg gca ggg ctg gcc gcc gca	1105



Arg Ala Gly Val Leu Gly Cys Leu Ala Leu Ala Gly Leu Ala Ala Ala  
 355 360 365

ctg ccc ctg gcc tca gtg gga gaa tac ggg gcc tcc cca ctc tgc ctg 1153  
 Leu Pro Leu Ala Ser Val Gly Glu Tyr Gly Ala Ser Pro Leu Cys Leu  
 370 375 380

ccc tac gcg cca cct gag ggt cag cca gca gcc ctg ggc ttc acc gtg 1201  
 Pro Tyr Ala Pro Pro Glu Gly Gln Pro Ala Ala Leu Gly Phe Thr Val  
 385 390 395 400

gcc ctg gtg atg atg aac tcc ttc tgt ttc ctg gtc gtg gcc ggt gcc 1249  
 Ala Leu Val Met Met Asn Ser Phe Cys Phe Leu Val Val Ala Gly Ala  
 405 410 415

tac atc aaa ctg tac tgt gac ctg ccg cgg ggc gac ttt gag gcc gtg 1297  
 Tyr Ile Lys Leu Tyr Cys Asp Leu Pro Arg Gly Asp Phe Glu Ala Val  
 420 425 430

tgg gac tgc gcc atg gtg agg cac gtg gcc tgg ctc atc ttc gca gac 1345  
 Trp Asp Cys Ala Met Val Arg His Val Ala Trp Leu Ile Phe Ala Asp  
 435 440 445

ggg ctc ctc tac tgt ccc gtg gcc ttc ctc agc ttc gcc tcc atg ctg 1393  
 Gly Leu Leu Tyr Cys Pro Val Ala Phe Leu Ser Phe Ala Ser Met Leu  
 450 455 460

ggc ctc ttc cct gtc acg ccc gag gcc gtc aag tct gtc ctg ctg gtg 1441  
 Gly Leu Phe Pro Val Thr Pro Glu Ala Val Lys Ser Val Leu Leu Val  
 465 470 475 480

gtg ctg ccc ctg cct gcc tgc ctc aac cca ctg ctg tac ctg ctc ttc 1489  
 Val Leu Pro Leu Pro Ala Cys Leu Asn Pro Leu Leu Tyr Leu Leu Phe  
 485 490 495

aac ccc cac ttc cgg gat gac ctt cgg cgg ctt cgg ccc cgc gca ggg 1537  
 Asn Pro His Phe Arg Asp Asp Leu Arg Arg Leu Arg Pro Arg Ala Gly  
 500 505 510

gac tca ggg ccc cta gcc tat gct gcg gcc ggg gag ctg gag aag agc 1585  
 Asp Ser Gly Pro Leu Ala Tyr Ala Ala Ala Gly Glu Leu Glu Lys Ser  
 515 520 525

tcc tgt gat tct acc cag gcc ctg gta gcc ttc tct gat gtg gat ctc 1633  
 Ser Cys Asp Ser Thr Gln Ala Leu Val Ala Phe Ser Asp Val Asp Leu  
 530 535 540

att ctg gaa gct tct gaa gct ggg cgg ccc cct ggg ctg gag acc tat 1681  
 Ile Leu Glu Ala Ser Glu Ala Gly Arg Pro Pro Gly Leu Glu Thr Tyr  
 545 550 555 560

ggc ttc ccc tca gtg acc ctc atc tcc tgt cag cag cca ggg gcc ccc 1729  
 Gly Phe Pro Ser Val Thr Leu Ile Ser Cys Gln Gln Pro Gly Ala Pro  
 565 570 575

agg ctg gag ggc agc cat tgt gta gag cca gag ggg aac cac ttt ggg 1777  
 Arg Leu Glu Gly Ser His Cys Val Glu Pro Glu Gly Asn His Phe Gly

580 585 590

aac ccc caa ccc tcc atg gat gga gaa ctg ctg ctg agg gca gag gga 1825  
 Asn Pro Gln Pro Ser Met Asp Gly Glu Leu Leu Leu Arg Ala Glu Gly  
 595 600 605

tct acg cca gca ggt gga ggc ttg tca ggg ggt ggc ggc ttt cag ccc 1873  
 Ser Thr Pro Ala Gly Gly Gly Leu Ser Gly Gly Gly Gly Phe Gln Pro  
 610 615 620

tct ggc ttg gcc ttt gct tca cac gtg taaatatccc tccccattct 1920  
 Ser Gly Leu Ala Phe Ala Ser His Val  
 625 630

tctcttcccc tctcttccct ttctctctct cccctcggtg aatgatggct gcttctaaaa 1980

caaatacaac caaaactcag cagtgtgatc tatagcagga tggcccagta cctggctcca 2040

ctgatcaect ctctctgtg accatcacca acgggtgcct ctggcctgg ctttcccttg 2100

gccttctca gcttcacctt gatactgggc ctcttcttg tcatgtctga agctgtggac 2160

cagagacctg gacttttgtc tgcttaaggg aatgagggga agtaaagaca gtgaaggggt 2220

ggaggggtga tcagggcaca gtggacaggg agacctcaca gagaaaggcc tggaaggtga 2280

tttcccggtg gactcatgga taggatacaa aatgtgttcc atgtaccatt aatcttgaca 2340

tatgccatgc ataaagactt cctattaaaa taagctttgg aagagattaa aaaaaaaaaa 2400

aaagggcggc cgctctagag gatccaagct tacgtacgcg tgcatgcgac gtcatagctc 2460

ttctatagtg tcacctaaat tcaatt 2486

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 <213> Homo sapiens

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 20 25 30

Ser Leu Pro Ala His Pro Ala Ser Leu Ala Ala Leu Ala Ala Ser Asn  
 35 40 45

Thr Thr Ala Ser Gly Lys Leu Glu Xaa Asp Thr Phe Ser Gln Leu Ser  
 50 55 60

Ser Leu Gln Ala Leu Asp Leu Ser Trp Asn Ala Ile Arg Ser Ile His  
 65 70 75 80  
 Pro Glu Ala Phe Ser Thr Leu His Ser Leu Val Lys Leu Asp Leu Thr  
 85 90 95  
 Asp Asn Gln Leu Thr Thr Leu Pro Leu Ala Gly Leu Gly Gly Leu Met  
 100 105 110  
 His Leu Lys Leu Lys Gly Asn Leu Ala Leu Ser Gln Ala Phe Ser Lys  
 115 120 125  
 Asp Ser Phe Pro Lys Leu Arg Ile Leu Glu Val Pro Tyr Ala Tyr Gln  
 130 135 140  
 Cys Cys Pro Tyr Gly Met Cys Ala Ser Phe Phe Lys Ala Ser Gly Gln  
 145 150 155 160  
 Trp Glu Ala Glu Asp Leu His Leu Asp Asp Glu Glu Ser Ser Lys Arg  
 165 170 175  
 Pro Leu Gly Leu Leu Ala Arg Gln Ala Glu Asn His Tyr Asp Gln Asp  
 180 185 190  
 Leu Asp Glu Leu Gln Leu Glu Met Glu Asp Ser Lys Pro His Pro Ser  
 195 200 205  
 Val Gln Cys Ser Pro Thr Pro Gly Pro Phe Lys Pro Cys Glu Tyr Leu  
 210 215 220  
 Phe Glu Ser Trp Gly Ile Arg Leu Ala Val Trp Ala Ile Val Leu Leu  
 225 230 235 240  
 Ser Val Leu Cys Asn Gly Leu Val Leu Leu Thr Val Phe Ala Gly Gly  
 245 250 255  
 Pro Ala Pro Leu Pro Pro Val Lys Phe Val Val Gly Ala Ile Ala Gly  
 260 265 270  
 Ala Asn Thr Leu Thr Gly Ile Ser Cys Gly Leu Leu Ala Ser Val Asp  
 275 280 285  
 Ala Leu Thr Phe Gly Gln Phe Ser Glu Tyr Gly Ala Arg Trp Glu Thr  
 290 295 300  
 Gly Leu Gly Cys Arg Ala Thr Gly Phe Leu Ala Val Leu Gly Ser Glu  
 305 310 315 320  
 Ala Ser Val Leu Leu Leu Thr Leu Ala Ala Val Gln Cys Ser Val Ser  
 325 330 335  
 Val Ser Cys Val Arg Ala Tyr Gly Lys Ser Pro Ser Leu Gly Ser Val  
 340 345 350  
 Arg Ala Gly Val Leu Gly Cys Leu Ala Leu Ala Gly Leu Ala Ala Ala  
 355 360 365

Leu Pro Leu Ala Ser Val Gly Glu Tyr Gly Ala Ser Pro Leu Cys Leu  
 370 375 380  
 Pro Tyr Ala Pro Pro Glu Gly Gln Pro Ala Ala Leu Gly Phe Thr Val  
 385 390 395 400  
 Ala Leu Val Met Met Asn Ser Phe Cys Phe Leu Val Val Ala Gly Ala  
 405 410 415  
 Tyr Ile Lys Leu Tyr Cys Asp Leu Pro Arg Gly Asp Phe Glu Ala Val  
 420 425 430  
 Trp Asp Cys Ala Met Val Arg His Val Ala Trp Leu Ile Phe Ala Asp  
 435 440 445  
 Gly Leu Leu Tyr Cys Pro Val Ala Phe Leu Ser Phe Ala Ser Met Leu  
 450 455 460  
 Gly Leu Phe Pro Val Thr Pro Glu Ala Val Lys Ser Val Leu Leu Val  
 465 470 475 480  
 Val Leu Pro Leu Pro Ala Cys Leu Asn Pro Leu Leu Tyr Leu Leu Phe  
 485 490 495  
 Asn Pro His Phe Arg Asp Asp Leu Arg Arg Leu Arg Pro Arg Ala Gly  
 500 505 510  
 Asp Ser Gly Pro Leu Ala Tyr Ala Ala Ala Gly Glu Leu Glu Lys Ser  
 515 520 525  
 Ser Cys Asp Ser Thr Gln Ala Leu Val Ala Phe Ser Asp Val Asp Leu  
 530 535 540  
 Ile Leu Glu Ala Ser Glu Ala Gly Arg Pro Pro Gly Leu Glu Thr Tyr  
 545 550 555 560  
 Gly Phe Pro Ser Val Thr Leu Ile Ser Cys Gln Gln Pro Gly Ala Pro  
 565 570 575  
 Arg Leu Glu Gly Ser His Cys Val Glu Pro Glu Gly Asn His Phe Gly  
 580 585 590  
 Asn Pro Gln Pro Ser Met Asp Gly Glu Leu Leu Leu Arg Ala Glu Gly  
 595 600 605  
 Ser Thr Pro Ala Gly Gly Gly Leu Ser Gly Gly Gly Gly Phe Gln Pro  
 610 615 620  
 Ser Gly Leu Ala Phe Ala Ser His Val  
 625 630

&lt;210&gt; 6

&lt;211&gt; 1899

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(1899)

&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;222&gt; (171)

&lt;223&gt; n = any nucleotide

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Asn Thr Thr His Tyr Arg Glu Ser Trp Tyr Ala Cys Arg Tyr Arg Ser	
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gga att ccc ggg tgc acc cac gcg tcc gtg gag cgg agc cag ggt ctg	96
Gly Ile Pro Gly Ser Thr His Ala Ser Val Glu Arg Ser Gln Gly Leu	
20 25 30	
agc ctg ccg gct cat cca gcc tct ctt gct gcc cta gcg gcc tcc aac	144
Ser Leu Pro Ala His Pro Ala Ser Leu Ala Ala Leu Ala Ala Ser Asn	
35 40 45	
aca acc gca tct ggg aaa ttg gag ctn gac acc ttc agc cag ctg agc	192
Thr Thr Ala Ser Gly Lys Leu Glu Xaa Asp Thr Phe Ser Gln Leu Ser	
50 55 60	
tcc ctg caa gcc ctg gat ctt agc tgg aac gcc atc cgg tcc atc cac	240
Ser Leu Gln Ala Leu Asp Leu Ser Trp Asn Ala Ile Arg Ser Ile His	
65 70 75 80	
cct gag gcc ttc tcc acc ctg cac tcc ctg gtc aag ctg gac ctg aca	288
Pro Glu Ala Phe Ser Thr Leu His Ser Leu Val Lys Leu Asp Leu Thr	
85 90 95	
gac aac cag ctg acc aca ctg ccc ctg gct gga ctt ggg ggc ttg atg	336
Asp Asn Gln Leu Thr Thr Leu Pro Leu Ala Gly Leu Gly Gly Leu Met	
100 105 110	
cat ctg aag ctc aaa ggg aac ctt gct ctc tcc cag gcc ttc tcc aag	384
His Leu Lys Leu Lys Gly Asn Leu Ala Leu Ser Gln Ala Phe Ser Lys	
115 120 125	
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Asp Ser Phe Pro Lys Leu Arg Ile Leu Glu Val Pro Tyr Ala Tyr Gln	
130 135 140	
tgc tgt ccc tat ggg atg tgt gcc agc ttc ttc aag gcc tct ggg cag	480
Cys Cys Pro Tyr Gly Met Cys Ala Ser Phe Phe Lys Ala Ser Gly Gln	
145 150 155 160	
tgg gag gct gaa gac ctt cac ctt gat gat gag gag tct tca aaa agg	528
Trp Glu Ala Glu Asp Leu His Leu Asp Asp Glu Glu Ser Ser Lys Arg	
165 170 175	
ccc ctg ggc ctc ctt gcc aga caa gca gag aac cac tat gac cag gac	576
Pro Leu Gly Leu Leu Ala Arg Gln Ala Glu Asn His Tyr Asp Gln Asp	

180	185	190	
ctg gat gag ctc cag ctg gag atg gag gac tca aag cca cac ccc agt Leu Asp Glu Leu Gln Leu Glu Met Glu Asp Ser Lys Pro His Pro Ser 195 200 205			624
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cct gcc ccc ctg ccc ccg gtc aag ttt gtg gta ggt gcg att gca ggc Pro Ala Pro Leu Pro Pro Val Lys Phe Val Val Gly Ala Ile Ala Gly 260 265 270			816
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ggg ctc ctc tac tgt ccc gtg gcc ttc ctc agc ttc gcc tcc atg ctg 1392  
 Gly Leu Leu Tyr Cys Pro Val Ala Phe Leu Ser Phe Ala Ser Met Leu  
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 Gly Leu Phe Pro Val Thr Pro Glu Ala Val Lys Ser Val Leu Leu Val  
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aac ccc cac ttc cgg gat gac ctt cgg cgg ctt cgg ccc cgc gca ggg 1536  
 Asn Pro His Phe Arg Asp Asp Leu Arg Arg Leu Arg Pro Arg Ala Gly  
 500 505 510

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 Asp Ser Gly Pro Leu Ala Tyr Ala Ala Ala Gly Glu Leu Glu Lys Ser  
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tcc tgt gat tct acc cag gcc ctg gta gcc ttc tct gat gtg gat ctc 1632  
 Ser Cys Asp Ser Thr Gln Ala Leu Val Ala Phe Ser Asp Val Asp Leu  
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 Ile Leu Glu Ala Ser Glu Ala Gly Arg Pro Pro Gly Leu Glu Thr Tyr  
 545 550 555 560

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agg ctg gag ggc agc cat tgt gta gag cca gag ggg aac cac ttt ggg 1776  
 Arg Leu Glu Gly Ser His Cys Val Glu Pro Glu Gly Asn His Phe Gly  
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aac ccc caa ccc tcc atg gat gga gaa ctg ctg ctg agg gca gag gga 1824  
 Asn Pro Gln Pro Ser Met Asp Gly Glu Leu Leu Leu Arg Ala Glu Gly  
 595 600 605

tct acg cca gca ggt gga ggc ttg tca ggg ggt ggc ggc ttt cag ccc 1872  
 Ser Thr Pro Ala Gly Gly Gly Leu Ser Gly Gly Gly Gly Phe Gln Pro  
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 Ser Gly Leu Ala Phe Ala Ser His Val  
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 1 5 10 15  
 gag ttc cct gtg gcc atc cgg acc ctg ggc aga ctg cag gaa ctg ggg 96  
 Glu Phe Pro Val Ala Ile Arg Thr Leu Gly Arg Leu Gln Glu Leu Gly  
 20 25 30  
 ttc cat aac aac aac atc aag gcc atc cca gaa aag gcc ttc atg ggg 144  
 Phe His Asn Asn Asn Ile Lys Ala Ile Pro Glu Lys Ala Phe Met Gly  
 35 40 45  
 aac cct ctg cta cag acg ata cac ttt tat gat aac cca atc cag ttt 192  
 Asn Pro Leu Leu Gln Thr Ile His Phe Tyr Asp Asn Pro Ile Gln Phe  
 50 55 60  
 gtg gga aga tcg gca ttc cag tac ctg cct aaa ctc cac aca cta tct 240  
 Val Gly Arg Ser Ala Phe Gln Tyr Leu Pro Lys Leu His Thr Leu Ser  
 65 70 75 80  
 ctg aat ggt gcc atg gac atc cag gag ttt cca gat ctc aaa ggc acc 288  
 Leu Asn Gly Ala Met Asp Ile Gln Glu Phe Pro Asp Leu Lys Gly Thr  
 85 90 95  
 acc agc ctg gag atc ctg acc ctg acc cgc gca ggc atc cgg ctg ctc 336  
 Thr Ser Leu Glu Ile Leu Thr Leu Thr Arg Ala Gly Ile Arg Leu Leu  
 100 105 110  
 cca tcg ggg atg tgc caa cag ctg ccc agg ctc cga gtc ctg gaa ctg 384  
 Pro Ser Gly Met Cys Gln Gln Leu Pro Arg Leu Arg Val Leu Glu Leu  
 115 120 125  
 tct cac aat caa att gag gag ctg ccc agc ctg cac agg tgt cag aaa 432  
 Ser His Asn Gln Ile Glu Glu Leu Pro Ser Leu His Arg Cys Gln Lys  
 130 135 140  
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 Asp Thr Phe Ser Gln Leu Ser Ser Leu Gln Ala Leu Asp Leu Ser Trp  
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180	185	190	
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ctc tcc cag gcc ttc tcc aag gac agt ttc cca aaa ctg agg atc ctg Leu Ser Gln Ala Phe Ser Lys Asp Ser Phe Pro Lys Leu Arg Ile Leu 225 230 235 240			720
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gat gag gag tct tca aaa agg ccc ctg ggc ctc ctt gcc aga caa gca Asp Glu Glu Ser Ser Lys Arg Pro Leu Gly Leu Leu Ala Arg Gln Ala 275 280 285			864
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tac gga gcc cgc tgg gag acg ggg cta ggc tgc cgg gcc act ggc ttc Tyr Gly Ala Arg Trp Glu Thr Gly Leu Gly Cys Arg Ala Thr Gly Phe 405 410 415			1248

ctg gca gta ctt ggg tgc gag gca tgc gtg ctg ctg ctc act ctg gcc	1296
Leu Ala Val Leu Gly Ser Glu Ala Ser Val Leu Leu Leu Thr Leu Ala	
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gca gtg cag tgc agc gtc tcc gtc tcc tgt gtc cgg gcc tat ggg aag	1344
Ala Val Gln Cys Ser Val Ser Val Ser Cys Val Arg Ala Tyr Gly Lys	
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Ser Pro Ser Leu Gly Ser Val Arg Ala Gly Val Leu Gly Cys Leu Ala	
450 455 460	
ctg gca ggg ctg gcc gcc gca ctg ccc ctg gcc tca gtg gga gaa tac	1440
Leu Ala Gly Leu Ala Ala Leu Pro Leu Ala Ser Val Gly Glu Tyr	
465 470 475 480	
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Gly Ala Ser Pro Leu Cys Leu Pro Tyr Ala Pro Pro Glu Gly Gln Pro	
485 490 495	
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Ala Ala Leu Gly Phe Thr Val Ala Leu Val Met Met Asn Ser Phe Cys	
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Phe Leu Val Val Ala Gly Ala Tyr Ile Lys Leu Tyr Cys Asp Leu Pro	
515 520 525	
cgg ggc gac ttt gag gcc gtg tgg gac tgc gcc atg gtg agg cac gtg	1632
Arg Gly Asp Phe Glu Ala Val Trp Asp Cys Ala Met Val Arg His Val	
530 535 540	
gcc tgg ctc atc ttc gca gac ggg ctc ctc tac tgt ccc gtg gcc ttc	1680
Ala Trp Leu Ile Phe Ala Asp Gly Leu Leu Tyr Cys Pro Val Ala Phe	
545 550 555 560	
ctc agc ttc gcc tcc atg ctg ggc ctc ttc cct gtc acg ccc gag gcc	1728
Leu Ser Phe Ala Ser Met Leu Gly Leu Phe Pro Val Thr Pro Glu Ala	
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gtc aag tct gtc ctg ctg gtg gtg ctg ccc ctg cct gcc tgc ctc aac	1776
Val Lys Ser Val Leu Leu Val Val Leu Pro Leu Pro Ala Cys Leu Asn	
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Pro Leu Leu Tyr Leu Leu Phe Asn Pro His Phe Arg Asp Asp Leu Arg	
595 600 605	
cgg ctt cgg ccc cgc gca ggg gac tca ggg ccc cta gcc tat gct gcg	1872
Arg Leu Arg Pro Arg Ala Gly Asp Ser Gly Pro Leu Ala Tyr Ala Ala	
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gcc ggg gag ctg gag aag agc tcc tgt gat tct acc cag gcc ctg gta	1920
Ala Gly Glu Leu Glu Lys Ser Ser Cys Asp Ser Thr Gln Ala Leu Val	
625 630 635 640	

gcc ttc tct gat gtg gat ctc att ctg gaa gct tct gaa gct ggg cgg 1968  
 Ala Phe Ser Asp Val Asp Leu Ile Leu Glu Ala Ser Glu Ala Gly Arg  
                     645                                    650                                    655

ccc cct ggg ctg gag acc tat ggc ttc ccc tca gtg acc ctc atc tcc 2016  
 Pro Pro Gly Leu Glu Thr Tyr Gly Phe Pro Ser Val Thr Leu Ile Ser  
                     660                                    665                                    670

tgt cag cag cca ggg gcc ccc agg ctg gag ggc agc cat tgt gta gag 2064  
 Cys Gln Gln Pro Gly Ala Pro Arg Leu Glu Gly Ser His Cys Val Glu  
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cca gag ggg aac cac ttt ggg aac ccc caa ccc tcc atg gat gga gaa 2112  
 Pro Glu Gly Asn His Phe Gly Asn Pro Gln Pro Ser Met Asp Gly Glu  
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ctg ctg ctg agg gca gag gga tct acg cca gca ggt gga ggc ttg tca 2160  
 Leu Leu Leu Arg Ala Glu Gly Ser Thr Pro Ala Gly Gly Gly Leu Ser  
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ggg ggt ggc ggc ttt cag ccc tct ggc ttg gcc ttt gct tca cac gtg 2208  
 Gly Gly Gly Gly Phe Gln Pro Ser Gly Leu Ala Phe Ala Ser His Val  
                     725                                    730                                    735

taaatatccc tccccattct tctcttcccc tctcttccct ttcctctctc cccctcgggtg 2268

aatgatggct gcttctaaaa caaatacaac caaaactcag cagtgtgatc tatagcagga 2328

tggcccagta cctggctcca ctgatcacct ctctcctgtg accatcacca acgggtgcct 2388

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agtaaagaca gtgaaggggt ggaggggtga tcagggcaca gtggacaggg agacctcaca 2568

gagaaaggcc tggaaggtga tttcccggtg gactcatgga taggatacaa aatgtgttcc 2628

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aagagattaa aaaaaaaaaa aaa 2711

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                     20                                    25                                    30

Phe His Asn Asn Asn Ile Lys Ala Ile Pro Glu Lys Ala Phe Met Gly  
           35                                    40                                    45

Asn Pro Leu Leu Gln Thr Ile His Phe Tyr Asp Asn Pro Ile Gln Phe  
 50 55 60  
 Val Gly Arg Ser Ala Phe Gln Tyr Leu Pro Lys Leu His Thr Leu Ser  
 65 70 75 80  
 Leu Asn Gly Ala Met Asp Ile Gln Glu Phe Pro Asp Leu Lys Gly Thr  
 85 90 95  
 Thr Ser Leu Glu Ile Leu Thr Leu Thr Arg Ala Gly Ile Arg Leu Leu  
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 Pro Ser Gly Met Cys Gln Gln Leu Pro Arg Leu Arg Val Leu Glu Leu  
 115 120 125  
 Ser His Asn Gln Ile Glu Glu Leu Pro Ser Leu His Arg Cys Gln Lys  
 130 135 140  
 Leu Glu Glu Ile Gly Leu Gln His Asn Arg Ile Trp Glu Ile Gly Ala  
 145 150 155 160  
 Asp Thr Phe Ser Gln Leu Ser Ser Leu Gln Ala Leu Asp Leu Ser Trp  
 165 170 175  
 Asn Ala Ile Arg Ser Ile His Pro Glu Ala Phe Ser Thr Leu His Ser  
 180 185 190  
 Leu Val Lys Leu Asp Leu Thr Asp Asn Gln Leu Thr Thr Leu Pro Leu  
 195 200 205  
 Ala Gly Leu Gly Gly Leu Met His Leu Lys Leu Lys Gly Asn Leu Ala  
 210 215 220  
 Leu Ser Gln Ala Phe Ser Lys Asp Ser Phe Pro Lys Leu Arg Ile Leu  
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 Glu Val Pro Tyr Ala Tyr Gln Cys Cys Pro Tyr Gly Met Cys Ala Ser  
 245 250 255  
 Phe Phe Lys Ala Ser Gly Gln Trp Glu Ala Glu Asp Leu His Leu Asp  
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 275 280 285  
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 Asp Ser Lys Pro His Pro Ser Val Gln Cys Ser Pro Thr Pro Gly Pro  
 305 310 315 320  
 Phe Lys Pro Cys Glu Tyr Leu Phe Glu Ser Trp Gly Ile Arg Leu Ala  
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 Val Trp Ala Ile Val Leu Leu Ser Val Leu Cys Asn Gly Leu Val Leu  
 340 345 350

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 Val Val Gly Ala Ile Ala Gly Ala Asn Thr Leu Thr Gly Ile Ser Cys  
 370 375 380  
 Gly Leu Leu Ala Ser Val Asp Ala Leu Thr Phe Gly Gln Phe Ser Glu  
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 Phe Leu Val Val Ala Gly Ala Tyr Ile Lys Leu Tyr Cys Asp Leu Pro  
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 Arg Gly Asp Phe Glu Ala Val Trp Asp Cys Ala Met Val Arg His Val  
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 Pro Leu Leu Tyr Leu Leu Phe Asn Pro His Phe Arg Asp Asp Leu Arg  
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 Arg Leu Arg Pro Arg Ala Gly Asp Ser Gly Pro Leu Ala Tyr Ala Ala  
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 Ala Gly Glu Leu Glu Lys Ser Ser Cys Asp Ser Thr Gln Ala Leu Val  
 625 630 635 640  
 Ala Phe Ser Asp Val Asp Leu Ile Leu Glu Ala Ser Glu Ala Gly Arg  
 645 650 655

Pro Pro Gly Leu Glu Thr Tyr Gly Phe Pro Ser Val Thr Leu Ile Ser  
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Cys Gln Gln Pro Gly Ala Pro Arg Leu Glu Gly Ser His Cys Val Glu  
675 680 685

Pro Glu Gly Asn His Phe Gly Asn Pro Gln Pro Ser Met Asp Gly Glu  
690 695 700

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gag ttc cct gtg gcc atc cgg acc ctg ggc aga ctg cag gaa ctg ggg 96  
Glu Phe Pro Val Ala Ile Arg Thr Leu Gly Arg Leu Gln Glu Leu Gly  
20 25 30

ttc cat aac aac aac atc aag gcc atc cca gaa aag gcc ttc atg ggg 144  
Phe His Asn Asn Asn Ile Lys Ala Ile Pro Glu Lys Ala Phe Met Gly  
35 40 45

aac cct ctg cta cag acg ata cac ttt tat gat aac cca atc cag ttt 192  
Asn Pro Leu Leu Gln Thr Ile His Phe Tyr Asp Asn Pro Ile Gln Phe  
50 55 60

gtg gga aga tcg gca ttc cag tac ctg cct aaa ctc cac aca cta tct 240  
Val Gly Arg Ser Ala Phe Gln Tyr Leu Pro Lys Leu His Thr Leu Ser  
65 70 75 80

ctg aat ggt gcc atg gac atc cag gag ttt cca gat ctc aaa ggc acc 288  
Leu Asn Gly Ala Met Asp Ile Gln Glu Phe Pro Asp Leu Lys Gly Thr  
85 90 95

acc agc ctg gag atc ctg acc ctg acc cgc gca ggc atc cgg ctg ctc 336  
Thr Ser Leu Glu Ile Leu Thr Leu Thr Arg Ala Gly Ile Arg Leu Leu  
100 105 110

cca tcg ggg atg tgc caa cag ctg ccc agg ctc cga gtc ctg gaa ctg 384  
Pro Ser Gly Met Cys Gln Gln Leu Pro Arg Leu Arg Val Leu Glu Leu

115	120	125	
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Ser His Asn Gln Ile Glu Glu Leu Pro Ser Leu His Arg Cys Gln Lys			
130	135	140	
ttg gag gaa atc ggc ctc caa cac aac cgc atc tgg gaa att gga gct			480
Leu Glu Glu Ile Gly Leu Gln His Asn Arg Ile Trp Glu Ile Gly Ala			
145	150	155	160
gac acc ttc agc cag ctg agc tcc ctg caa gcc ctg gat ctt agc tgg			528
Asp Thr Phe Ser Gln Leu Ser Ser Leu Gln Ala Leu Asp Leu Ser Trp			
	165	170	175
aac gcc atc cgg tcc atc cac cct gag gcc ttc tcc acc ctg cac tcc			576
Asn Ala Ile Arg Ser Ile His Pro Glu Ala Phe Ser Thr Leu His Ser			
	180	185	190
ctg gtc aag ctg gac ctg aca gac aac cag ctg acc aca ctg ccc ctg			624
Leu Val Lys Leu Asp Leu Thr Asp Asn Gln Leu Thr Thr Leu Pro Leu			
	195	200	205
gct gga ctt ggg ggc ttg atg cat ctg aag ctc aaa ggg aac ctt gct			672
Ala Gly Leu Gly Gly Leu Met His Leu Lys Leu Lys Gly Asn Leu Ala			
	210	215	220
ctc tcc cag gcc ttc tcc aag gac agt ttc cca aaa ctg agg atc ctg			720
Leu Ser Gln Ala Phe Ser Lys Asp Ser Phe Pro Lys Leu Arg Ile Leu			
	225	230	235
gag gtg cct tat gcc tac cag tgc tgt ccc tat ggg atg tgt gcc agc			768
Glu Val Pro Tyr Ala Tyr Gln Cys Cys Pro Tyr Gly Met Cys Ala Ser			
	245	250	255
ttc ttc aag gcc tct ggg cag tgg gag gct gaa gac ctt cac ctt gat			816
Phe Phe Lys Ala Ser Gly Gln Trp Glu Ala Glu Asp Leu His Leu Asp			
	260	265	270
gat gag gag tct tca aaa agg ccc ctg ggc ctc ctt gcc aga caa gca			864
Asp Glu Glu Ser Ser Lys Arg Pro Leu Gly Leu Leu Ala Arg Gln Ala			
	275	280	285
gag aac cac tat gac cag gac ctg gat gag ctc cag ctg gag atg gag			912
Glu Asn His Tyr Asp Gln Asp Leu Asp Glu Leu Gln Leu Glu Met Glu			
	290	295	300
gac tca aag cca cac ccc agt gtc cag tgt agc cct act cca ggc ccc			960
Asp Ser Lys Pro His Pro Ser Val Gln Cys Ser Pro Thr Pro Gly Pro			
	305	310	315
ttc aag ccc tgt gag tac ctc ttt gaa agc tgg ggc atc cgc ctg gcc			1008
Phe Lys Pro Cys Glu Tyr Leu Phe Glu Ser Trp Gly Ile Arg Leu Ala			
	325	330	335
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Val Trp Ala Ile Val Leu Leu Ser Val Leu Cys Asn Gly Leu Val Leu			
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Leu Thr Val Phe Ala Gly Gly Pro Ala Pro Leu Pro Pro Val Lys Phe	
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Val Val Gly Ala Ile Ala Gly Ala Asn Thr Leu Thr Gly Ile Ser Cys	
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Gly Leu Leu Ala Ser Val Asp Ala Leu Thr Phe Gly Gln Phe Ser Glu	
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Tyr Gly Ala Arg Trp Glu Thr Gly Leu Gly Cys Arg Ala Thr Gly Phe	
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Leu Ala Val Leu Gly Ser Glu Ala Ser Val Leu Leu Leu Thr Leu Ala	
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Ala Val Gln Cys Ser Val Ser Val Ser Cys Val Arg Ala Tyr Gly Lys	
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Ser Pro Ser Leu Gly Ser Val Arg Ala Gly Val Leu Gly Cys Leu Ala	
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Leu Ala Gly Leu Ala Ala Ala Leu Pro Leu Ala Ser Val Gly Glu Tyr	
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Gly Ala Ser Pro Leu Cys Leu Pro Tyr Ala Pro Pro Glu Gly Gln Pro	
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Ala Ala Leu Gly Phe Thr Val Ala Leu Val Met Met Asn Ser Phe Cys	
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Phe Leu Val Val Ala Gly Ala Tyr Ile Lys Leu Tyr Cys Asp Leu Pro	
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Arg Gly Asp Phe Glu Ala Val Trp Asp Cys Ala Met Val Arg His Val	
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Ala Trp Leu Ile Phe Ala Asp Gly Leu Leu Tyr Cys Pro Val Ala Phe	
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ctc agc ttc gcc tcc atg ctg ggc ctc ttc cct gtc acg ccc gag gcc	1728
Leu Ser Phe Ala Ser Met Leu Gly Leu Phe Pro Val Thr Pro Glu Ala	
565 570 575	



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Val Lys Ser Val Leu Leu Val Val Leu Pro Leu Pro Ala Cys Leu Asn  
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Pro Leu Leu Tyr Leu Leu Phe Asn Pro His Phe Arg Asp Asp Leu Arg  
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Cys Gln Gln Pro Gly Ala Pro Arg Leu Glu Gly Ser His Cys Val Glu  
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Pro Glu Gly Asn His Phe Gly Asn Pro Gln Pro Ser Met Asp Gly Glu  
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Met Pro Ser Pro  
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Pro	Gly	Leu	Arg	Ala	Leu	Trp	Leu	Cys	Ala	Ala	Leu	Cys	Ala	Ser	Arg		
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agg	gcc	ggc	ggc	gcc	ccc	cag	ccc	ggc	ccg	ggg	ccc	acc	gcc	tgc	ccg		211
Arg	Ala	Gly	Gly	Ala	Pro	Gln	Pro	Gly	Pro	Gly	Pro	Thr	Ala	Cys	Pro		
				25				30						35			
gcc	ccc	tgc	cac	tgc	cag	gag	gac	ggc	atc	atg	ctg	tct	gcc	gac	tgc		259
Ala	Pro	Cys	His	Cys	Gln	Glu	Asp	Gly	Ile	Met	Leu	Ser	Ala	Asp	Cys		
			40					45					50				
tct	gag	ctc	ggg	ctg	tcc	gcc	gtt	ccg	ggg	gac	ctg	gac	ccc	ctg	acg		307
Ser	Glu	Leu	Gly	Leu	Ser	Ala	Val	Pro	Gly	Asp	Leu	Asp	Pro	Leu	Thr		
	55						60					65					
gct	tac	ctg	gac	ctc	agc	atg	aac	aac	ctc	aca	gag	ctt	cag	cct	ggc		355
Ala	Tyr	Leu	Asp	Leu	Ser	Met	Asn	Asn	Leu	Thr	Glu	Leu	Gln	Pro	Gly		
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ctc	ttc	cac	cac	ctg	cgc	ttc	ttg	gag	gag	ctg	cgt	ctc	tct	ggg	aac		403
Leu	Phe	His	His	Leu	Arg	Phe	Leu	Glu	Glu	Leu	Arg	Leu	Ser	Gly	Asn		
	85				90				95					100			
cat	ctc	tca	cac	atc	cca	gga	caa	gca	ttc	tct	ggt	ctc	tac	agc	ctg		451
His	Leu	Ser	His	Ile	Pro	Gly	Gln	Ala	Phe	Ser	Gly	Leu	Tyr	Ser	Leu		
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aaa	atc	ctg	atg	ctg	cag	aac	aat	cag	ctg	gga	gga	atc	ccc	gca	gag		499
Lys	Ile	Leu	Met	Leu	Gln	Asn	Asn	Gln	Leu	Gly	Gly	Ile	Pro	Ala	Glu		
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gcg	ctg	tgg	gag	ctg	ccg	agc	ctg	cag	tcg	ctg	cgc	cta	gat	gcc	aac		547
Ala	Leu	Trp	Glu	Leu	Pro	Ser	Leu	Gln	Ser	Leu	Arg	Leu	Asp	Ala	Asn		
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ctc	atc	tcc	ctg	gtc	ccg	gag	agg	agc	ttt	gag	ggg	ctg	tcc	tcc	ctc		595
Leu	Ile	Ser	Leu	Val	Pro	Glu	Arg	Ser	Phe	Glu	Gly	Leu	Ser	Ser	Leu		
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cgc	cac	ctc	tgg	ctg	gac	gac	aat	gca	ctc	acg	gag	atc	cct	gtc	agg		643
Arg	His	Leu	Trp	Leu	Asp	Asp	Asn	Ala	Leu	Thr	Glu	Ile	Pro	Val	Arg		
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gcc	ctc	aac	aac	ctc	cct	gcc	ctg	cag	gcc	atg	acc	ctg	gcc	ctc	aac		691
Ala	Leu	Asn	Asn	Leu	Pro	Ala	Leu	Gln	Ala	Met	Thr	Leu	Ala	Leu	Asn		
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cgc	atc	agc	cac	atc	ccc	gac	tac	gcg	ttc	cag	aat	ctc	acc	agc	ctt		739
Arg	Ile	Ser	His	Ile	Pro	Asp	Tyr	Ala	Phe	Gln	Asn	Leu	Thr	Ser	Leu		
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gtg	gtg	ctg	cat	ttg	cat	aac	aac	cgc	atc	cag	cat	ctg	ggg	acc	cac		787
Val	Val	Leu	His	Leu	His	Asn	Asn	Arg	Ile	Gln	His	Leu	Gly	Thr	His		
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agc	ttc	gag	ggg	ctg	cac	aat	ctg	gag	aca	cta	gac	ctg	aat	tat	aac		835
Ser	Phe	Glu	Gly	Leu	His	Asn	Leu	Glu	Thr	Leu	Asp	Leu	Asn	Tyr	Asn		

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Lys Leu Gln Glu Phe Pro Val Ala Ile Arg Thr Leu Gly Arg Leu Gln			
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gaa ctg ggg ttc cat aac aac aac atc aag gcc atc cca gaa aag gcc			931
Glu Leu Gly Phe His Asn Asn Asn Ile Lys Ala Ile Pro Glu Lys Ala			
265	270		275
ttc atg ggg aac cct ctg cta cag acg ata cac ttt tat gat aac cca			979
Phe Met Gly Asn Pro Leu Leu Gln Thr Ile His Phe Tyr Asp Asn Pro			
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atc cag ttt gtg gga aga tcg gca ttc cag tac ctg cct aaa ctc cac			1027
Ile Gln Phe Val Gly Arg Ser Ala Phe Gln Tyr Leu Pro Lys Leu His			
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aca cta tct ctg aat ggt gcc atg gac atc cag gag ttt cca gat ctc			1075
Thr Leu Ser Leu Asn Gly Ala Met Asp Ile Gln Glu Phe Pro Asp Leu			
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aaa ggc acc acc agc ctg gag atc ctg acc ctg acc cgc gca ggc atc			1123
Lys Gly Thr Thr Ser Leu Glu Ile Leu Thr Leu Thr Arg Ala Gly Ile			
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cgg ctg ctc cca tcg ggg atg tgc caa cag ctg ccc agg ctc cga gtc			1171
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Leu Glu Leu Ser His Asn Gln Ile Glu Glu Leu Pro Ser Leu His Arg			
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tgt cag aaa ttg gag gaa atc ggc ctc caa cac aac cgc atc tgg gaa			1267
Cys Gln Lys Leu Glu Glu Ile Gly Leu Gln His Asn Arg Ile Trp Glu			
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Ile Gly Ala Asp Thr Phe Ser Gln Leu Ser Ser Leu Gln Ala Leu Asp			
390	395		400
ctt agc tgg aac gcc atc cgg tcc atc cac cct gag gcc ttc tcc acc			1363
Leu Ser Trp Asn Ala Ile Arg Ser Ile His Pro Glu Ala Phe Ser Thr			
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Leu His Ser Leu Val Lys Leu Asp Leu Thr Asp Asn Gln Leu Thr Thr			
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Leu Pro Leu Ala Gly Leu Gly Gly Leu Met His Leu Lys Leu Lys Gly			
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Asn Leu Ala Leu Ser Gln Ala Phe Ser Lys Asp Ser Phe Pro Lys Leu			
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Arg Ile Leu Glu Val Pro Tyr Ala Tyr Gln Cys Cys Pro Tyr Gly Met	
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Cys Ala Ser Phe Phe Lys Ala Ser Gly Gln Trp Glu Ala Glu Asp Leu	
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His Leu Asp Asp Glu Glu Ser Ser Lys Arg Pro Leu Gly Leu Leu Ala	
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Arg Gln Ala Glu Asn His Tyr Asp Gln Asp Leu Asp Glu Leu Gln Leu	
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Leu Val Leu Leu Thr Val Phe Ala Gly Gly Pro Ala Pro Leu Pro Pro	
585 590 595	
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Val Lys Phe Val Val Gly Ala Ile Ala Gly Ala Asn Thr Leu Thr Gly	
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Phe Ser Glu Tyr Gly Ala Arg Trp Glu Thr Gly Leu Gly Cys Arg Ala	
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Thr Gly Phe Leu Ala Val Leu Gly Ser Glu Ala Ser Val Leu Leu Leu	
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Thr Leu Ala Ala Val Gln Cys Ser Val Ser Val Ser Cys Val Arg Ala	
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Tyr Gly Lys Ser Pro Ser Leu Gly Ser Val Arg Ala Gly Val Leu Gly	
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 Cys Leu Ala Leu Ala Gly Leu Ala Ala Ala Leu Pro Leu Ala Ser Val  
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Asp Pro Leu Thr Ala Tyr Leu Asp Leu Ser Met Asn Asn Leu Thr Glu  
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Leu Gln Pro Gly Leu Phe His His Leu Arg Phe Leu Glu Glu Leu Arg  
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Leu Ser Gly Asn His Leu Ser His Ile Pro Gly Gln Ala Phe Ser Gly  
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Leu Tyr Ser Leu Lys Ile Leu Met Leu Gln Asn Asn Gln Leu Gly Gly  
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 Pro Tyr Gly Met Cys Ala Ser Phe Phe Lys Ala Ser Gly Gln Trp Glu  
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Ala Pro Pro Glu Gly Gln Pro Ala Ala Leu Gly Phe Thr Val Ala Leu  
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 Cys Ala Met Val Arg His Val Ala Trp Leu Ile Phe Ala Asp Gly Leu  
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 Leu Tyr Cys Pro Val Ala Phe Leu Ser Phe Ala Ser Met Leu Gly Leu  
                     785                    790                    795                    800  
 Phe Pro Val Thr Pro Glu Ala Val Lys Ser Val Leu Leu Val Val Leu  
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 Pro Leu Pro Ala Cys Leu Asn Pro Leu Leu Tyr Leu Leu Phe Asn Pro  
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 His Phe Arg Asp Asp Leu Arg Arg Leu Arg Pro Arg Ala Gly Asp Ser  
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 Gly Pro Leu Ala Tyr Ala Ala Ala Gly Glu Leu Glu Lys Ser Ser Cys  
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 Asp Ser Thr Gln Ala Leu Val Ala Phe Ser Asp Val Asp Leu Ile Leu  
                     865                    870                    875                    880  
 Glu Ala Ser Glu Ala Gly Arg Pro Pro Gly Leu Glu Thr Tyr Gly Phe  
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 Pro Ser Val Thr Leu Ile Ser Cys Gln Gln Pro Gly Ala Pro Arg Leu  
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 Glu Gly Ser His Cys Val Glu Pro Glu Gly Asn His Phe Gly Asn Pro  
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 Gln Pro Ser Met Asp Gly Glu Leu Leu Leu Arg Ala Glu Gly Ser Thr  
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 Pro Ala Gly Gly Gly Leu Ser Gly Gly Gly Gly Phe Gln Pro Ser Gly  
                     945                    950                    955                    960  
 Leu Ala Phe Ala Ser His Val  
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Cys Ala Ser Arg Arg Ala Gly Gly Ala Pro Gln Pro Gly Pro Gly Pro	
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acc gcc tgc ccg gcc ccc tgc cac tgc cag gag gac ggc atc atg ctg	144
Thr Ala Cys Pro Ala Pro Cys His Cys Gln Glu Asp Gly Ile Met Leu	
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tct gcc gac tgc tct gag ctc ggg ctg tcc gcc gtt ccg ggg gac ctg	192
Ser Ala Asp Cys Ser Glu Leu Gly Leu Ser Ala Val Pro Gly Asp Leu	
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gac ccc ctg acg gct tac ctg gac ctc agc atg aac aac ctc aca gag	240
Asp Pro Leu Thr Ala Tyr Leu Asp Leu Ser Met Asn Asn Leu Thr Glu	
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Leu Gln Pro Gly Leu Phe His His Leu Arg Phe Leu Glu Glu Leu Arg	
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Leu Ser Gly Asn His Leu Ser His Ile Pro Gly Gln Ala Phe Ser Gly	
100 105 110	
ctc tac agc ctg aaa atc ctg atg ctg cag aac aat cag ctg gga gga	384
Leu Tyr Ser Leu Lys Ile Leu Met Leu Gln Asn Asn Gln Leu Gly Gly	
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Ile Pro Ala Glu Ala Leu Trp Glu Leu Pro Ser Leu Gln Ser Leu Arg	
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Leu Ala Leu Asn Arg Ile Ser His Ile Pro Asp Tyr Ala Phe Gln Asn	
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Leu Thr Ser Leu Val Val Leu His Leu His Asn Asn Arg Ile Gln His	
210 215 220	

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Leu Gly Thr His Ser Phe Glu Gly Leu His Asn Leu Glu Thr Leu Asp	
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Leu Asn Tyr Asn Lys Leu Gln Glu Phe Pro Val Ala Ile Arg Thr Leu	
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Gly Arg Leu Gln Glu Leu Gly Phe His Asn Asn Asn Ile Lys Ala Ile	
260 265 270	
cca gaa aag gcc ttc atg ggg aac cct ctg cta cag acg ata cac ttt	864
Pro Glu Lys Ala Phe Met Gly Asn Pro Leu Leu Gln Thr Ile His Phe	
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Tyr Asp Asn Pro Ile Gln Phe Val Gly Arg Ser Ala Phe Gln Tyr Leu	
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Ser Leu His Arg Cys Gln Lys Leu Glu Glu Ile Gly Leu Gln His Asn	
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Arg Ile Trp Glu Ile Gly Ala Asp Thr Phe Ser Gln Leu Ser Ser Leu	
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Gln Ala Leu Asp Leu Ser Trp Asn Ala Ile Arg Ser Ile His Pro Glu	
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Ala Phe Ser Thr Leu His Ser Leu Val Lys Leu Asp Leu Thr Asp Asn	
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Gln Leu Thr Thr Leu Pro Leu Ala Gly Leu Gly Gly Leu Met His Leu	
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Lys Leu Lys Gly Asn Leu Ala Leu Ser Gln Ala Phe Ser Lys Asp Ser	
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Phe Pro Lys Leu Arg Ile Leu Glu Val Pro Tyr Ala Tyr Gln Cys Cys	
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Pro Tyr Gly Met Cys Ala Ser Phe Phe Lys Ala Ser Gly Gln Trp Glu	
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Cys Ser Pro Thr Pro Gly Pro Phe Lys Pro Cys Glu Tyr Leu Phe Glu	
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Pro	Leu	Pro	Ala	Cys	Leu	Asn	Pro	Leu	Leu	Tyr	Leu	Leu	Phe	Asn	Pro		
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His	Phe	Arg	Asp	Asp	Leu	Arg	Arg	Leu	Arg	Pro	Arg	Ala	Gly	Asp	Ser		
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Gln Pro Ser Met Asp Gly Glu	Leu Leu Leu Arg Ala Glu	Gly Ser Thr	
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